Installation and Upgrade Guide for Cisco Unified Videoconferencing 3545 MCU Release 5.1

Corporate Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

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Preface

Revised: November 27, 2006, OL-11899-01

Purpose

This guide describes how to install and upgrade the Cisco Unified Videoconferencing 3545 MCU module.

Audience

This guide is intended for network administrators who need instructions about how to install and upgrade the Cisco Unified Videoconferencing 3545 MCU module.

Organization

This manual is organized as follows:

Chapter	Description
Chapter 1, "Cisco Unified Videoconferencing 3545 MCU Functionality"	Provides a general overview of Cisco Unified Videoconferencing 3545 MCU products, features, and network architecture.
Chapter 2, "Installing the Cisco Unified Videoconferencing 3545 MCU"	Describes how to install the Cisco Unified Videoconferencing 3545 MCU, how to use the Administrator interface to configure board settings and add Cisco Unified Videoconferencing 3545 MCU users.
Chapter 3, "Using the Cisco Software Upgrade Utility"	Describes how to use the Cisco Software Upgrade Utility
Chapter 4, "Cisco Unified Videoconferencing 3545 MCU Cable Connections and Pin-outs"	Describes the pin-to-pin and pin-out configurations of the connectors and cables of the Cisco Unified Videoconferencing 3545 MCU

Chapter	Description
Chapter 5, "Cisco Unified Videoconferencing 3545 MCU Technical Specifications"	Describes the technical specifications for the Cisco Unified Videoconferencing 3545 MCU.
Chapter 6, "Cisco Unified Videoconferencing 3545 MCU Safety"	Describes safety procedures and requirements for operating the Cisco Unified Videoconferencing 3545 MCU.
Chapter 7, "Cisco Unified Videoconferencing 3545 MCU Compliance and Certifications"	Provides certifications that have been approved for the Cisco Unified Videoconferencing 3545 MCU.

Document Conventions

This document uses the following conventions:

Convention	Description
boldface font	Commands and keywords are in **boldface**.
italic font	Arguments for which you supply values are in *italics*.
[ ]	Elements in square brackets are optional.
{ x | y | z }	Alternative keywords are grouped in braces and separated by vertical bars.
[x | y | z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
`screen` font	Terminal sessions and information the system displays are in `screen` font.
`boldface screen` font	Information you must enter is in **`boldface screen`** font.
italic screen font	Arguments for which you supply values are in *italic screen* font.
^	The symbol ^ represents the key labeled Control—for example, the key combination ^D in a screen display means hold down the Control key while you press the D key.
< >	Nonprinting characters, such as passwords are in angle brackets.

Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. This section explains the product documentation resources that Cisco offers.

Cisco.com

You can access the most current Cisco documentation at this URL:

http://www.cisco.com/techsupport

You can access the Cisco website at this URL:

http://www.cisco.com

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

Product Documentation DVD

The Product Documentation DVD is a library of technical product documentation on a portable medium. The DVD enables you to access installation, configuration, and command guides for Cisco hardware and software products. With the DVD, you have access to the HTML documentation and some of the PDF files found on the Cisco website at this URL:

http://www.cisco.com/univercd/home/home.htm

The Product Documentation DVD is created and released regularly. DVDs are available singly or by subscription. Registered Cisco.com users can order a Product Documentation DVD (product number DOC-DOCDVD= or DOC-DOCDVD=SUB) from Cisco Marketplace at the Product Documentation Store at this URL:

http://www.cisco.com/go/marketplace/docstore

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You must be a registered Cisco.com user to access Cisco Marketplace. Registered users may order Cisco documentation at the Product Documentation Store at this URL:

http://www.cisco.com/go/marketplace/docstore

If you do not have a user ID or password, you can register at this URL:

http://tools.cisco.com/RPF/register/register.do

Documentation Feedback

You can provide feedback about Cisco technical documentation on the Cisco Technical Support & Documentation site area by entering your comments in the feedback form available in every online document.

Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you will find information about how to do the following:

- Report security vulnerabilities in Cisco products
- Obtain assistance with security incidents that involve Cisco products
- Register to receive security information from Cisco

A current list of security advisories, security notices, and security responses for Cisco products is available at this URL:

http://www.cisco.com/go/psirt

To see security advisories, security notices, and security responses as they are updated in real time, you can subscribe to the Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed. Information about how to subscribe to the PSIRT RSS feed is found at this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you have identified a vulnerability in a Cisco product, contact PSIRT:

- For emergencies only—security-alert@cisco.com

  An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.

- For nonemergencies—psirt@cisco.com

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532

Tip We encourage you to use Pretty Good Privacy (PGP) or a compatible product (for example, GnuPG) to encrypt any sensitive information that you send to Cisco. PSIRT can work with information that has been encrypted with PGP versions 2.*x* through 9.*x*.

Never use a revoked encryption key or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

The link on this page has the current PGP key ID in use.

If you do not have or use PGP, contact PSIRT to find other means of encrypting the data before sending any sensitive material.

Product Alerts and Field Notices

Modifications to or updates about Cisco products are announced in Cisco Product Alerts and Cisco Field Notices. You can receive Cisco Product Alerts and Cisco Field Notices by using the Product Alert Tool on Cisco.com. This tool enables you to create a profile and choose those products for which you want to receive information.

To access the Product Alert Tool, you must be a registered Cisco.com user. (To register as a Cisco.com user, go to this URL: http://tools.cisco.com/RPF/register/register.do) Registered users can access the tool at this URL: http://tools.cisco.com/Support/PAT/do/ViewMyProfiles.do?local=en

Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Technical Support & Documentation website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

Cisco Technical Support & Documentation Website

The Cisco Technical Support & Documentation website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day at this URL:

http://www.cisco.com/techsupport

Access to all tools on the Cisco Technical Support & Documentation website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

http://tools.cisco.com/RPF/register/register.do

Note Use the **Cisco Product Identification Tool** to locate your product serial number before submitting a request for service online or by phone. You can access this tool from the Cisco Technical Support & Documentation website by clicking the **Tools & Resources** link, clicking the **All Tools (A-Z)** tab, and then choosing **Cisco Product Identification Tool** from the alphabetical list. This tool offers three search options: by product ID or model name; by tree view; or, for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

Tip Displaying and Searching on Cisco.com

If you suspect that the browser is not refreshing a web page, force the browser to update the web page by holding down the Ctrl key while pressing F5.

To find technical information, narrow your search to look in technical documentation, not the entire Cisco.com website. On the Cisco.com home page, click the **Advanced Search** link under the Search box and then click the **Technical Support & Documentation** radio button.

To provide feedback about the Cisco.com website or a particular technical document, click **Contacts & Feedback** at the top of any Cisco.com web page.

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

http://www.cisco.com/techsupport/servicerequest

For S1 or S2 service requests, or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411
Australia: 1 800 805 227
EMEA: +32 2 704 55 55
USA: 1 800 553 2447

For a complete list of Cisco TAC contacts, go to this URL:

http://www.cisco.com/techsupport/contacts

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—An existing network is “down” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of the network is impaired while most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The Cisco Online Subscription Center is the website where you can sign up for a variety of Cisco e-mail newsletters and other communications. Create a profile and then select the subscriptions that you would like to receive. To visit the Cisco Online Subscription Center, go to this URL:

  http://www.cisco.com/offer/subscribe

- The *Cisco Product Quick Reference Guide* is a handy, compact reference tool that includes brief product overviews, key features, sample part numbers, and abbreviated technical specifications for many Cisco products that are sold through channel partners. It is updated twice a year and includes the latest Cisco channel product offerings. To order and find out more about the *Cisco Product Quick Reference Guide*, go to this URL:

  http://www.cisco.com/go/guide

- Cisco Marketplace provides a variety of Cisco books, reference guides, documentation, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

  http://www.cisco.com/go/marketplace/

- Cisco Press publishes a wide range of general networking, training, and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

  http://www.ciscopress.com

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the *Internet Protocol Journal* at this URL:

  http://www.cisco.com/ipj

- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:

  http://www.cisco.com/en/US/products/index.html

- Networking Professionals Connection is an interactive website where networking professionals share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:

  http://www.cisco.com/discuss/networking

- "What's New in Cisco Documentation" is an online publication that provides information about the latest documentation releases for Cisco products. Updated monthly, this online publication is organized by product category to direct you quickly to the documentation for your products. You can view the latest release of "What's New in Cisco Documentation" at this URL:

  http://www.cisco.com/univercd/cc/td/doc/abtunicd/136957.htm

- World-class networking training is available from Cisco. You can view current offerings at this URL:

  http://www.cisco.com/en/US/learning/index.html

Cisco Unified Videoconferencing 3545 MCU Functionality

This section describes the following topics:

- Introducing the Cisco Unified Videoconferencing 3545 MCU, page 1-1
- About Cisco Unified Videoconferencing 3545 MCU Users, page 1-2
- Main Features of the 3545 MCU, page 1-2
- Port Capacities of the 3545 MCU, page 1-5
- About Cisco Unified Videoconferencing 3545 MCU Architecture, page 1-6
- About Cisco Unified Videoconferencing 3545 MCU Topologies, page 1-7

Introducing the Cisco Unified Videoconferencing 3545 MCU

The Cisco Unified Videoconferencing 3545 MCU enables multimedia, multiparty collaboration in applications such as group conferencing, distance learning, training and video telephony. The Cisco Unified Videoconferencing 3545 MCU supports multimedia, multiparty communications in the board room, at the desktop, in the home, or on the road over wireless.

The Cisco Unified Videoconferencing 3545 MCU provides core IP-centric functionality, a wide range of layouts, powerful audio and video transcoding, an open API for customer application development, support of web-initiated data collaboration, and software upgradeable technology. Services are pre-configured so that they suit most conferencing requirements. However, when necessary, administrators can create customized services to suit their networks and user needs.

About Cisco Unified Videoconferencing 3545 MCU Users

The Cisco Unified Videoconferencing 3545 MCU provides an intuitive web interface with a single point of entry for configuring, controlling and monitoring the Cisco Unified Videoconferencing 3545 MCU unit and conference sessions. Access to the interfaces is password-protected for four types of users—Administrators, Chair Controllers, Operators and conference users.

Administrators

Administrators use the Administrator interface for configuring, controlling and managing the Cisco Unified Videoconferencing 3545 MCU, conference services and supporting devices and applications.

Chair Controllers and Operators

Chair Controllers and Operators can use the Conference Control interface for controlling audio, video and data connections, for selecting advanced conference view image positioning and multiple layouts, and for creating new conferences and sub-conferences.

Chair Controllers can use the Conference Control interface to view conference details and manage a specific conference.

Operators have a global view of all current conferences, and can act as Chair Controllers for all current conferences.

Conference users

Conference users participate in actual video or audio conferences.

Main Features of the 3545 MCU

Table 1-1 lists the main features provided by the Cisco Unified Videoconferencing 3545 MCU for effective audio and videoconferencing and a satisfying user experience.

Table 1-1 Summary of Cisco Unified Videoconferencing 3545 MCU Features

Feature	Description
Flat capacity	Each conference participant can connect with his or her own optimal codec, resolution and bandwidth (from 64 Kbps up to 2 Mbps) without affecting other participants or the MCU capacity.
Superior video quality	Video and audio processing is carried out per user rather than per conference. Each user connects using unique, optimized audio and video settings to enjoy the best audio and video quality supported by his/her endpoint and network.

Table 1-1 Summary of Cisco Unified Videoconferencing 3545 MCU Features (continued)

Feature	Description
Seamless interoperability	The Cisco Unified Videoconferencing 3545 MCU is built on the strong foundation of the Cisco H.323 and SIP software, ensuring full compliance and unmatched interoperability with IP and ISDN networks. The MCU enables H.323, SIP and SCCP devices to participate in the same conference session. When used with the Cisco Unified Videoconferencing 3545 Gateway, the MCU also enables ISDN and V.35 wireless devices to participate in the same conference session.
Intuitive web-based management and control	Both the Cisco Unified Videoconferencing 3545 MCU system and actual conference sessions are managed, configured, and dynamically modified through an intuitive, web-based interface that offers easy, high-level conference control and administrative flexibility for an enhanced user experience.
Supported protocols	• H.323 version 4 • SIP RFC 3261 for the Session Initiation Protocol • SCCP • H.243 for conference control • RFC 2833 for in-band DTMF with SIP • H.281 for far end camera control (FECC) • H.235 for IP-based media encryption • H.239 for standard simultaneous transmission of live video and presentation sharing feeds. • SDP (RFC 3264, 2327) • T.120 • H.320 (when using a gateway) **Note** The Cisco Unified Videoconferencing 3545 MCU supports calls from H.323 and SIP endpoints in the same conference. Call signalling is handled on all ports regardless of the protocol type.
Audio transcoding codecs	• G.711 A/μ Law • G.722 • G.722.1 • G.723.1 • G.728 • G.729 A and B

Table 1-1 Summary of Cisco Unified Videoconferencing 3545 MCU Features (continued)

Feature	Description
Unmatched video quality	The Cisco Unified Videoconferencing 3545 MCU delivers exceptionally high quality video and audio processing, using latest industry standards and leveraging upon advanced software upgradeable DSP chips. The Cisco QualiVision feature provides highly improved, standard-based video quality for networks with packet loss, assuring best video quality at all times. The Cisco Unified Videoconferencing 3545 MCU achieves the best video quality by supporting the following video capabilities: • H.261, H.263 and H.264 in the same conference • A choice of 26 Continuous Presence layouts • Up to 2 Mbps on each stream without affecting capacity • QCIF, CIF and 4CIF in the same conference without affecting capacity • VGA, SVGA, XGA (supported for presentation channel only)
Multi-view (Dual Video)	Supports dual-screen video and data transmissions to endpoints supporting two monitors using the H.239 standard or TANDBERG DuoVideo. One monitor receives the conference video image and the other screen displays a presentation.
T.120 Data Collaboration support	Data collaboration is defined by the T.120 standard. Data collaboration using T.120 over the video conference connection enhances the conference by providing the tools for conference participants to share data instantaneously.
Security and privacy	• Administrator and operator password protection for accessing the Cisco Unified Videoconferencing 3545 MCU web interfaces. • Optional PIN protection for joining a conference and web access. • Additional PIN protection for conference Chair Control. • The Cisco Unified Videoconferencing 3545 MCU uses H.235-based encryption to achieve secure communication with endpoints that support this standard.
In-conference control using DTMF or H.243	During a conference, participants may use their endpoint remote control or keypad to perform actions such as mute, volume control, changing video layouts and inviting participants. Users interact with the Cisco Unified Videoconferencing 3545 MCU via DTMF signaling or the onscreen GUI of H.243-compliant endpoints.
Optional no self see	The administrator can configure the Cisco Unified Videoconferencing 3545 MCU service to remove the self-view for each conference participant. This feature enables more effective use of the video screen.
IVR messages	The Cisco Unified Videoconferencing 3545 MCU includes pre-recorded greetings to conference participants and announcements as each new participant joins the conference. Using the Cisco Audio Message Utility, IVR messages can be recorded to provide custom greetings and announcements.

Port Capacities of the 3545 MCU

The Cisco Unified Videoconferencing 3545 MCU can be configured to support a wide range of audio and/or video ports.

The Cisco Unified Videoconferencing 3545 MCU supports switched High Definition video service types. HD services enable Voice Activated single-screen displays at up to 2 Mbps, and offer resolutions of 1280 x 720 pixels (720p) and 1920 x 1080 pixels (1080p).

HD service types also enable you to set a minimum downspeeding bandwidth rate which is common to all endpoints participating in a conference.

Cisco Unified Videoconferencing 3545 MCU conferencing includes two types of cards:

- Cisco Unified Videoconferencing 3545 MCU—An MCU card that is responsible for the signaling and the audio. When working alone, this card can only do audio conferencing of 96 audio ports. It can be mixed and matched with up to four EMP cards to create a 96 flat port video bridge. The Cisco Unified Videoconferencing 3545 MCU card has no video capabilities.
- Cisco Unified Videoconferencing 3545 EMP Enhanced Media Processor (EMP)—A video processing card that can support 36 standard rate video ports (up to 384 Kbps) or 24 high rate video ports (up to 2 Mbps).

Table 1-2 shows the port capacity for different Cisco Unified Videoconferencing 3545 MCU configurations.

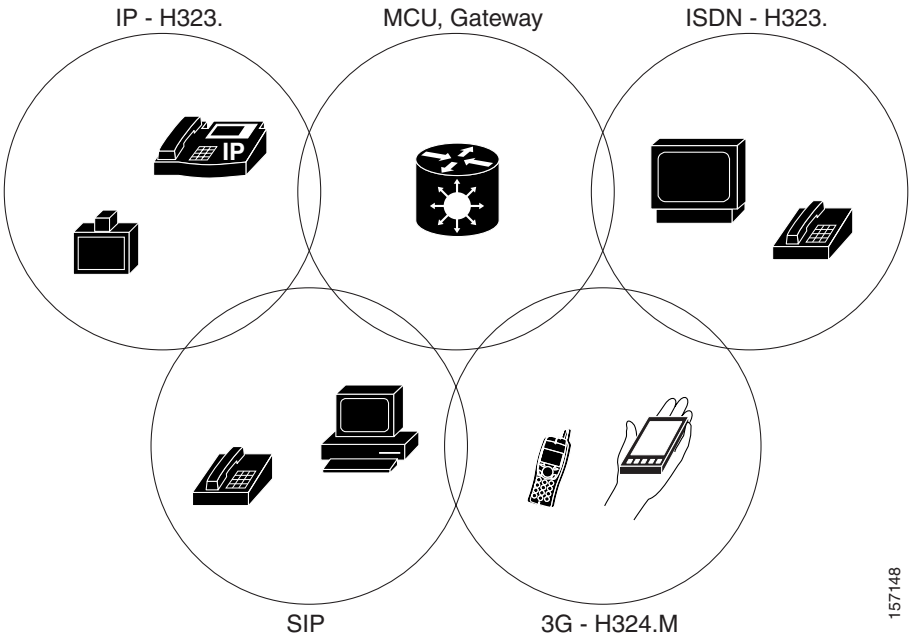
Table 1-2 Cisco Unified Videoconferencing 3545 MCU Port Capacities

Platform	Cisco Unified Videoconferencing 3545 MCU System Configuration	Port Capacity
	1 MCU card	96 audio
	4 MCU cards	384 audio
	1 MCU card + 1 EMP card	96 audio 48 standard rate video (up to 384 Kbps) 24 high rate video (up to 2 Mbps)
	1 MCU card + 2 EMP cards	96 audio/48 video 96 standard rate video (up to 384 Kbps) 48 high rate video (up to 2 Mbps)
	1 MCU card + 3 EMP cards	96 audio 96 standard rate video (up to 384 Kbps) 72 high rate video (up to 2 Mbps)
	8 MCU cards	768 audio
	1 MCU card + 4 EMP cards	96 audio 96 standard rate video (up to 384 Kbps) 96 high rate video (up to 2 Mbps)
	2 MCU cards + 4 EMP cards	192 audio 192 standard rate video (up to 384 Kbps) 96 high rate video (up to 2 Mbps)

About Cisco Unified Videoconferencing 3545 MCU Architecture

The Cisco Unified Videoconferencing 3545 MCU enables both voice-only and video conference calls for H.323, SIP, H.320, SCCP and regular PSTN network telephones. H.323 and SIP devices can connect to a conference directly through the Cisco Unified Videoconferencing 3545 MCU. Other devices such as voice telephones and video conferencing terminals (H.320) can connect to a conference via a gateway, such as the Cisco Unified Videoconferencing 3545 Gateway.

Figure 1-1 Supported Devices and Protocols



The Cisco Unified Videoconferencing 3545 MCU supports devices that can send and receive video streams, as well as those that cannot send but only receive video streams. This means that terminals without a video camera or video capturing capabilities can participate in a conference as voice-only participants while benefiting from seeing the other participants.

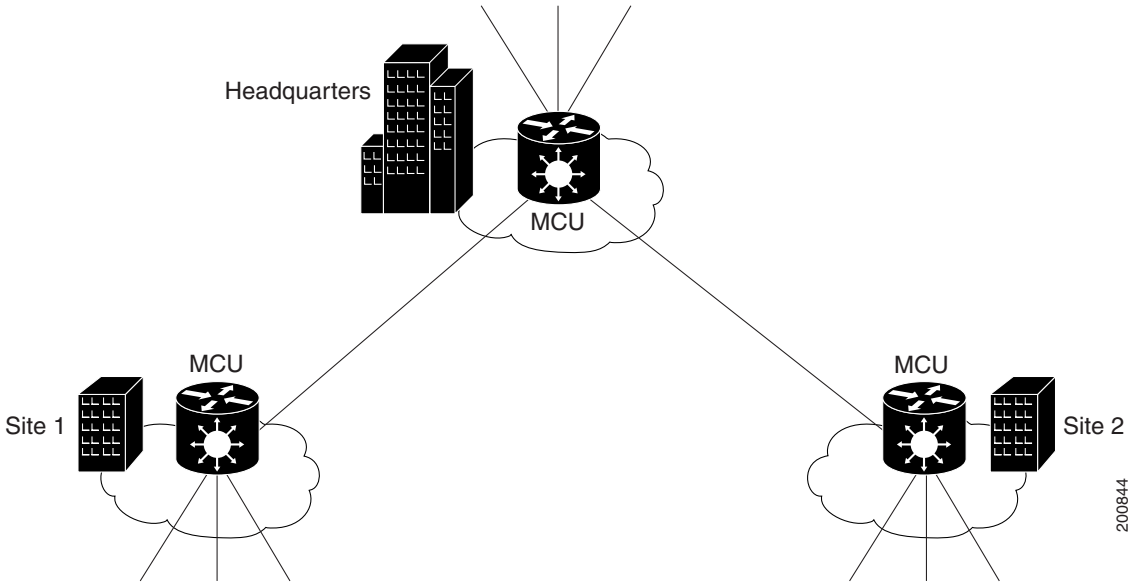
About Cisco Unified Videoconferencing 3545 MCU Topologies

The Cisco Unified Videoconferencing 3545 MCU can work in a centralized or cascaded topology. This section describes these two options.

Centralized Topology

In a centralized topology, the Cisco Unified Videoconferencing 3545 MCU performs media processing for all connected terminals. The Cisco Unified Videoconferencing 3545 MCU can handle multiple conferences simultaneously.

Figure 1-2 Centralized Topology



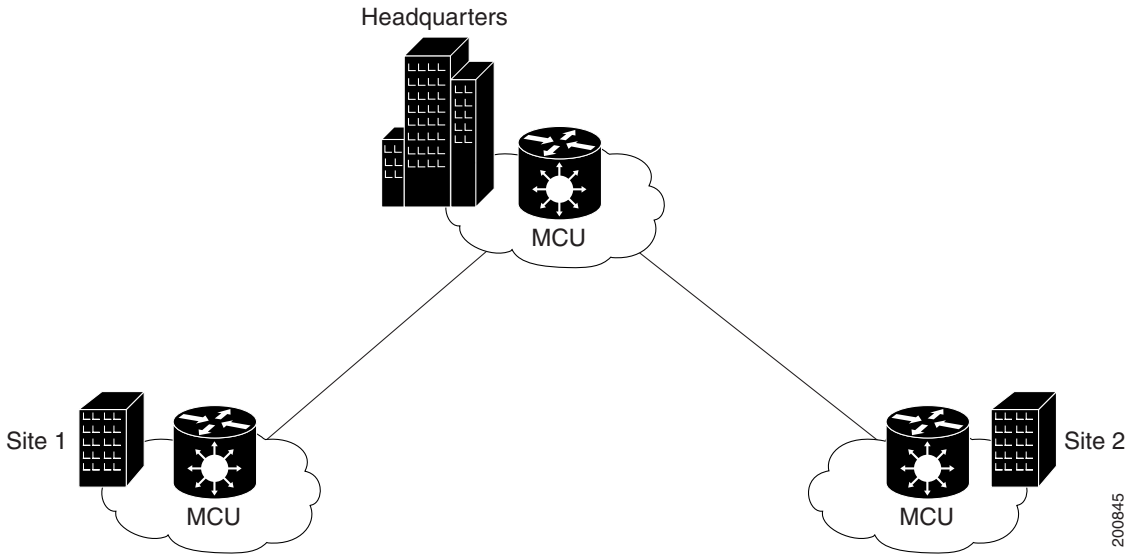
Cascaded Conferences

The Cisco Unified Videoconferencing 3545 MCU allows you to combine two or more conferences resulting in a larger conference with many more participants. This is called *cascading*. Cascading creates a distributed environment that helps reduce the drain on network resources. In addition, the processing resources required by the Cisco Unified Videoconferencing 3545 MCU are distributed between participating MCUs. Costly telephone or ISDN line usage can be further reduced with the mediation of a gateway.

Cascading occurs when one conference with “x” number of participants invites another conference with “y” number of participants. The two conferences effectively become one large conference. The bandwidth required across a cascaded conference link is only that of one audio/video stream between the two conferences. This is significantly less than the accumulated bandwidth of all the participants. Each separate Cisco Unified Videoconferencing 3545 MCU unit participating in a conference retains control of its individual conference resources and participants.

The cascaded conference in Figure 1-3 minimizes the use of network bandwidth while distributing processing among the participating the Cisco Unified Videoconferencing 3545 MCU units.

Figure 1-3 Cascaded Conference



CHAPTER 2

Installing the Cisco Unified Videoconferencing 3545 MCU

The Cisco Unified Videoconferencing 3545 MCU works together with a Cisco Unified Videoconferencing 3545 EMP Enhanced Media Processor (EMP) module to perform audio and videoconferencing. The Cisco Unified Videoconferencing 3545 MCU is responsible for signaling and audio. The EMP is responsible for video. The Cisco Unified Videoconferencing 3545 MCU and EMP modules connect via the Ethernet.

Each Cisco Unified Videoconferencing 3545 MCU may be registered to up to three EMP modules on the same chassis.

For correct operation, the EMP card must register with the MCU.

This section describes the following topics:

- Physical Description of the Cisco Unified Videoconferencing 3545 MCU and EMP Modules, page 2-2
- Preparing to Install the 3545 MCU, page 2-3
- Verifying the Package Contents of the 3545 MCU, page 2-4
- Mounting the Cisco Unified Videoconferencing 3545 Chassis in a 19-inch Rack, page 2-4
- Installing the 3545 MCU and EMP, page 2-5
- Removing the 3545 MCU and EMP, page 2-7
- Initial 3545 MCU Configuration, page 2-8
- Initial 3545 EMP Configuration, page 2-13
- Accessing the 3545 MCU Administrator Interface, page 2-18
- Using the 3545 MCU Setup Wizard, page 2-19
- Registering the Online Help for the 3545 MCU, page 2-20

Physical Description of the Cisco Unified Videoconferencing 3545 MCU and EMP Modules

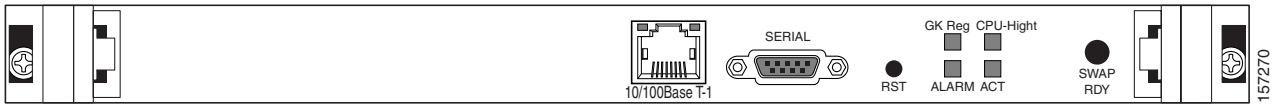
This section provides a physical description of the Cisco Unified Videoconferencing 3545 MCU and Cisco Unified Videoconferencing 3545 EMP modules.

Physical Description of the Cisco Unified Videoconferencing 3545 MCU Module

The Cisco Unified Videoconferencing 3545 MCU module has a 10/100BaseT Ethernet port on the front panel that uses an RJ-45 connector to connect to the network. There is an asynchronous, 9-pin serial port that you can use with a hyperterminal program to configure and monitor the module.

Figure 2-1 shows the front panel of the Cisco Unified Videoconferencing 3545 MCU module. Table 2-1 describes the components of the front panel.

Figure 2-1 Cisco Unified Videoconferencing 3545 MCU Front Panel



Physical Description of the Cisco Unified Videoconferencing 3545 EMP Module

Figure 2-2 shows the front panel of the Cisco Unified Videoconferencing 3545 EMP board. Table 2-1 describes the components of the front panel.

Figure 2-2 Cisco Unified Videoconferencing 3545 EMP Front Panel

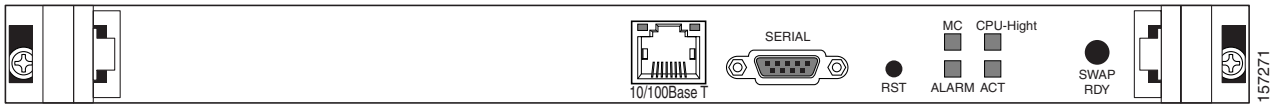


Table 2-1 Front Panel Components

Component	Description
10/100 BaseT-1 connector	An RJ-45 connector that provides the primary Ethernet connection for the IP network port.
SERIAL connector	A DB-9 connector that allows you to connect a PC terminal for local configuration.
RST button	Allows you to reset the board manually.

Table 2-1 Front Panel Components (continued)

Component	Description
GK Reg LED (on the Cisco Unified Videoconferencing 3545 MCU) MC LED (on the Cisco Unified Videoconferencing 3545 EMP)	Lights green when the MCU is registered with a gatekeeper. Lights green when the EMP is registered with the MCU.
CPU High LED	Lights green when more than 50% of the MCU/EMP resources are in use.
ACT LED	Lights green to indicate that there is at least one currently active conference on the MCU/EMP.
ALARM LED	Lights green to indicate that an error has occurred and the MCU/EMP requires resetting.
10/100 BaseT-1 LEDs	The top part of the 10/100 BaseT-1 connector contains two LED indicators. The left-hand LED lights green when the local IP network link is active. The right-hand LED lights green if the connection speed is 100 Mbps, and is off when the connection speed is 10 Mbps.
SWAP RDY LED	Hot Swap indication. Lights blue when the latches of a board are unlocked and it is safe to remove the board from the chassis. Goes off when the board is completely detached.

Preparing to Install the 3545 MCU

This section describes the requirements for installing the Cisco Unified Videoconferencing 3545 MCU and the Cisco Unified Videoconferencing 3545 EMP in a Cisco Unified Videoconferencing 3545 chassis. For more information, see the Platform Guide for Cisco IPVC 3644 Chassis.

Warning **During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.**

The requirements are as follows:

- Cisco Unified Videoconferencing 3545 chassis
- Proper clearance at the sides of the unit to allow adequate ventilation, and at least 20 cm clearance at the back of the chassis to allow access to the boards and cable connections
- A PC with a serial port and terminal emulation software to assign the MCU and EMP an IP address
- Two dedicated IP addresses—one each for the MCU and EMP
- The IP address of the router that the MCU and EMP will use to communicate across the network
- For an H.323 environment, IP address of the H.323 gatekeeper with which you want the MCU to register

- For a Skinny Client Control Protocol (SCCP) environment, the IP address of the Trivial File Transfer Protocol (TFTP) server or Cisco Unified CallManager from which you want the MCU and EMP to get configuration information
- Available IP network ports on the switch for the MCU and EMP
- A grounded AC power outlet
- A 10BaseT or 100BaseT LAN cable
- Ambient room temperature range of 32° to 122°F (0° to 50°C)
- Non-condensing relative humidity range of 5% to 85%

Verifying the Package Contents of the 3545 MCU

Inspect the contents of the box for shipping damage. Report any damage or missing items to your Cisco representative. Table 2-2 lists the package contents for the MCU and EMP.

Table 2-2 Package Contents with Cisco Unified Videoconferencing 3545 MCU and Cisco Unified Videoconferencing 3545 EMP

Product	Contents
Cisco Unified Videoconferencing 3545 chassis with MCU and EMP	• Cisco Unified Videoconferencing 3545 MCU module • Cisco Unified Videoconferencing 3545 EMP module • *Guide to Cisco Conferencing Documentation* • Regulatory Compliance and Safety Information for Cisco Unified Videoconferencing 3500 Products • Cisco Unified Videoconferencing Software CD-ROM • Cisco Information Package

Mounting the Cisco Unified Videoconferencing 3545 Chassis in a 19-inch Rack

You can optionally mount the Cisco Unified Videoconferencing 3545 chassis in a standard 19-inch rack. Two mounting brackets and a set of screws are included in the Cisco Unified Videoconferencing 3545 chassis shipping box.

Procedure

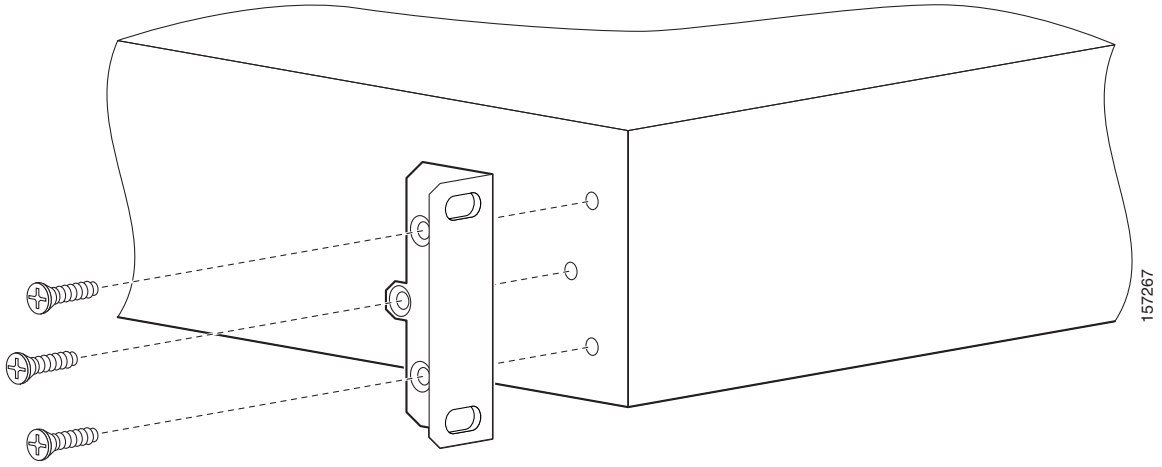
Step 1 Disconnect all cables including the power cables.

Step 2 Place the Cisco Unified Videoconferencing 3545 chassis right-side up on a hard flat surface, with the front panel facing you.

Step 3 Position a mounting bracket over the mounting holes on each side of the Cisco Unified Videoconferencing 3545 chassis, as shown in Figure 2-3.

Step 4 Pass the screws through the brackets and tighten them into the screw holes on each side of the Cisco Unified Videoconferencing 3545 chassis using a suitable screwdriver.

Figure 2-3 Fitting a Bracket for Rack Mounting



Step 5 Insert the Cisco Unified Videoconferencing 3545 chassis into the 19-inch rack.

Step 6 Fasten the brackets to the side rails of the rack.

Step 7 Make sure that the air vents at the sides of the Cisco Unified Videoconferencing 3545 chassis are not blocked.

Installing the 3545 MCU and EMP

This section describes how to insert the MCU into the Cisco Unified Videoconferencing 3545 chassis.

Before You Begin

Note the following:

- The Cisco Unified Videoconferencing 3545 chassis has four slots. You can install the MCU and the EMP in any of the slots at the front of the chassis.
- Insert the MCU in the top slot at the front of the Cisco Unified Videoconferencing 3545 chassis to view status and identification information via the System web user interface.

Warning **During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.**

Warning **Only trained and qualified personnel should be allowed to install, replace, or service this equipment.**

Warning **Before working on a system that has an on/off switch, turn OFF the power and unplug the power cord.**

Procedure

Step 1 On the front of the chassis, loosen the screws of the blank panel covering the slot into which the MCU or the EMP module is to be installed.

Step 2 Remove the blank panel.

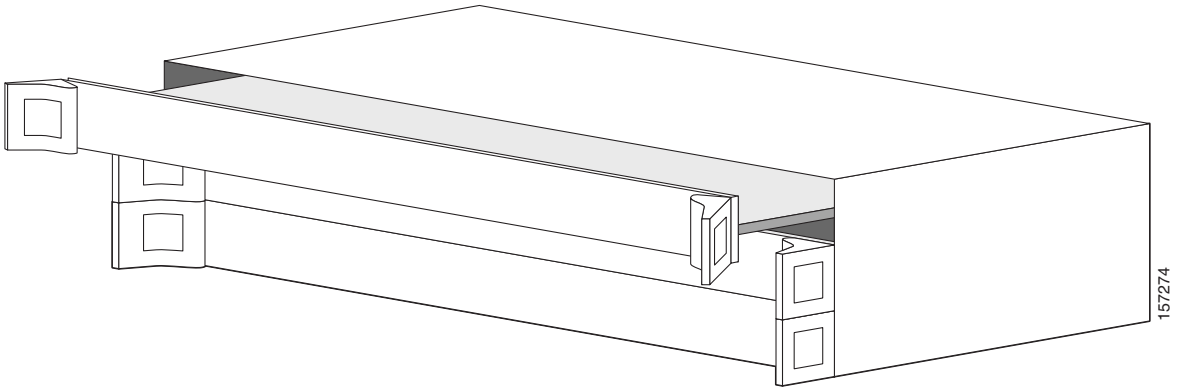
Step 3 Remove the new MCU or the EMP module from the antistatic bag.

Step 4 Press the red buttons and open the handles of the MCU or the EMP module.

Step 5 Align the edges of the MCU or the EMP module with the chassis guide rails.

Step 6 Slide the MCU or the EMP module into the chassis until it stops (see Figure 2-4).

Figure 2-4 Inserting the MCU or the EMP in the Cisco Unified Videoconferencing 3545 Chassis



Step 7 Use even pressure to push the module further into the slot.

Caution Do not force the connection. Forcing the connection can bend or damage the pins in the connector inside the chassis.

Note If you are installing the MCU or the EMP module and the power to the chassis is on, the SWAP RDY LED on the module front panel turns blue when you slide the module into the chassis as far as it will go. This means that you can secure the module safely. The LED turns off when the handles are closed.

Step 8 Snap the handles forward to secure the MCU or the EMP module in the slot.

Step 9 Secure the MCU or the EMP module screws.

Caution Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers and rear covers are in place.

Removing the 3545 MCU and EMP

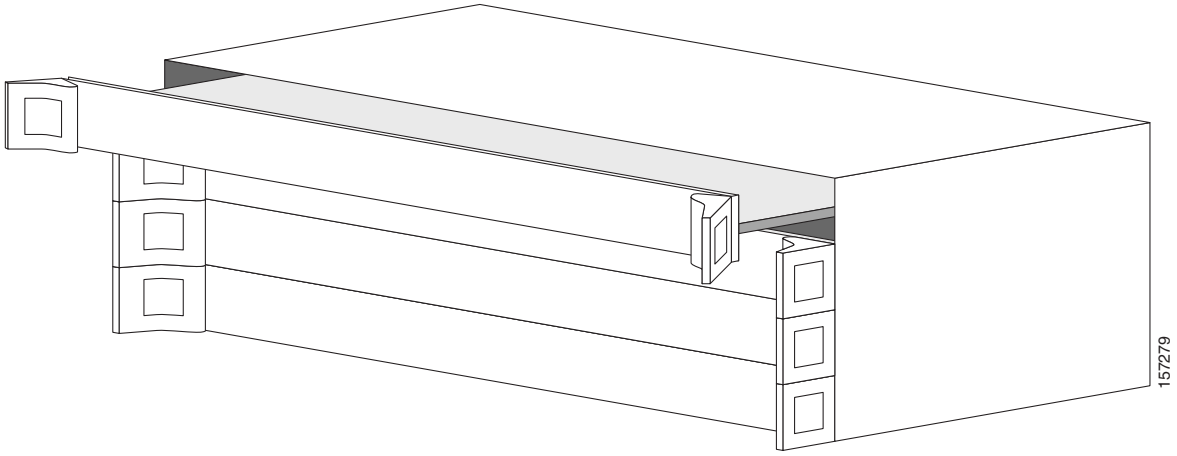
This section describes how to remove the MCU or the EMP from the Cisco Unified Videoconferencing 3545 chassis.

Procedure

Step 1 Loosen the MCU or the EMP module screws.

Step 2 Press the red buttons and open the handles of the MCU or the EMP module (see Figure 2-5).

Figure 2-5 Removing a Module from the Cisco Unified Videoconferencing 3545 Chassis



Step 3 Wait for the blue SWAP RDY LED to light up. The SWAP RDY LED indicates that it is safe to remove the module.

Note It may take up to one minute for the LED to light up while the Windows operating system is shutting down.

The light goes out when the board is completely detached from the backplane.

Step 4 Remove the module completely.

Step 5 Insert a blank cover panel provided by Cisco.

Step 6 Secure the blank cover panel screws.

Caution Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.

Initial 3545 MCU Configuration

Initial monitoring and administration of the Cisco Unified Videoconferencing 3545 MCU are performed from a remote PC via a serial connection. This allows you to access the boot configuration menu of the MCU. At power-up, the MCU goes through the following boot phases:

- Auto-boot—The embedded operating system initializes and displays basic information.
- Configuration menu—A six-second countdown allows you to enter the configuration menu.
- Initialization—The MCU completes its boot sequence and is ready for operation.

Note You can perform serial port configuration of the MCU only at startup, during a short period indicated by a six-second countdown. Once the initialization phase is complete, the only way you can access the configuration menu is by restarting the MCU.

Connecting to a PC

This section describes how to use the serial port connection to configure the MCU with an IP address.

Procedure

Step 1 Locate the terminal cable shipped with the MCU.

Step 2 Connect the end labeled PC to the serial port on the computer.

Step 3 Connect the end labeled Unit to the serial port connector on the MCU front panel.

Note The PC terminal should have an installed terminal emulation application, such as HyperTerminal.

Setting the IP Address

This section describes how to use the serial port to configure the unit with an IP address and other address information.

The serial port on the MCU front panel is used to assign a new IP address to your MCU. You can assign the IP address before or after you connect the MCU to the network.

Before You Begin

Gather the items listed in Table 2-3 to assign an IP address to the MCU.

Table 2-3 Requirements for Setting the IP Address

Requirements	Notes
Dedicated IP address for the MCU	
IP address of the default router the MCU uses to communicate over the network	

Table 2-3 Requirements for Setting the IP Address

Requirements	Notes
Subnet mask for the MCU if applicable	
Domain Name Server and domain name for MCU if applicable	
PC with available serial port and terminal emulator software installed	
RS-232 terminal cable (shipped with the unit)	

Procedure

Step 1 Connect the RS-232 terminal cable to the PC terminal.

Step 2 Connect the power cable.

Step 3 Start the terminal emulation application on the PC.

Step 4 Set the communication settings in the terminal emulation application on the PC as follows:

- Baud rate: 9600
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: None

Step 5 Turn on the power to the MCU.

A log of the auto-boot events appears on the computer.

Step 6 When the message “Press any key to start configuration” appears on the screen, press any key within six seconds.

The network configuration Main menu appears as follows:

```
Press any key to start configuration...
Main menu
N: Configure default network port values
P: Change the configuration software password
S: Configure network security level
A: Advanced configuration menu
Q: Quit

Select:
```

Step 7 At the prompt, enter **N** to configure default network port values and press **Enter**.

Step 8 At the Enter IP address for default interface prompt, enter the IP address you want to assign to the MCU and press **Enter**.

Caution Do not use leading zeros in the IP address.

Step 9 At the Enter Default Router IP Address prompt, enter the IP address of the router associated with the segment in which the unit will be installed and press **Enter**.

Caution Do not use leading zeros in the IP address.

Step 10 At the Enter IP Mask <HEX> for default device prompt, enter the subnet mask as follows:

- Convert the subnet mask IP address to hexadecimal notation, enter the hexadecimal number at the prompt, and press **Enter**.

For example, for the subnet mask 255.255.255.0 the hexadecimal value you enter is FFFFFF00.

Note You can use the desktop calculator on your computer to convert the subnet mask ID to hexadecimal notation.

- If a subnet mask is not used, press **Enter**.

After you enter the subnet mask parameter, the unit updates the boot line parameter and reboots.

Step 11 At the Enter Preferred DNS Address for default Interface prompt, enter the IP address of the primary DNS to which you want this MCU to register and press **Enter**.

Step 12 At the Enter Alternate DNS Address for default Interface prompt, enter the IP address of the secondary DNS to which you want this MCU to register and press **Enter**.

Step 13 At the Enter DNS suffix for default Interface prompt, enter the alias to which you want the DNS to associate this MCU and press **Enter**.

Allow the unit to complete the reboot process. A new emulator session begins.

Step 14 At the Network Configuration menu, do one of the following:

- Enter the letter for the set of parameters that you want to configure.
- Enter **Q** to save your changes and allow the device to complete the boot process.

Caution Configuration of any of the parameters other than <N> to configure default network port values may alter the function of the device and should not be performed by an unauthorized person.

Setting Ethernet Speed and Duplex Parameters

You can use the serial port to set the Ethernet speed and duplex parameters that you want the MCU to use.

Note We recommend that you manually set these parameters on the MCU and switch to Ethernet speed 100 Mbps and full duplex.

Procedure

Step 1 Access the MCU through the serial port and start a terminal emulator session.

Note If the MCU is already running, you need to reboot or restart the device.

Step 2 When the message "Press any key to start configuration" appears on the screen, press any key within six seconds.

The network configuration Main menu appears.

Step 3 At the prompt, enter **A** to display the Advanced Configuration menu and press **Enter**.

The Advanced Configuration menu appears.

Step 4 At the prompt, enter **3** to select "Change LAN port Settings" and press **Enter**.

Step 5 At the prompt, enter the number or letter for one of the following:

- **1** - 10Mbps Half Duplex
- **2** - 100Mbps half Duplex
- **3** - 10Mbps Full Duplex
- **4** - 100Mbps Full Duplex
- **5** - Auto
- **Q** - Quit

Enter this value to retain the current setting. The default setting is Auto.

Step 6 Press **Enter**.

The network configuration Main menu appears.

Step 7 At the Network Configuration menu, do one of the following:

- Enter the letter for the set of parameters that you want to configure.
- Enter **Q** to save your changes and allow the device to complete the boot process.

Setting a TFTP Server

You can use the Cisco Unified Videoconferencing 3545 MCU together with the Cisco Unified Videoconferencing 3545 EMP as a video conference bridge for Cisco Unified CallManager version 4.x and later. To set up the Cisco Unified Videoconferencing 3545 MCU to serve as a conference bridge, you must identify the TFTP server from which the Cisco Unified Videoconferencing 3545 MCU gets configuration information from the Cisco Unified CallManager. You can enter that information using the serial port connection or the Administrator interface.

Procedure

Step 1 Access the MCU through the serial port and start a terminal emulator session.

Note If the MCU is already running, you need to reboot or restart the device.

Step 2 When the message "Press any key to start configuration" appears on the screen, press any key within six seconds.

The Network Configuration menu appears.

Step 3 At the prompt, enter **T** and press the **Enter** key to select the "Configure TFTP server list" option.

Step 4 At the TFTP Server # 0 prompt, enter the IP address of the first TFTP server you want the MCU to use and press **Enter**.

Step 5 At the Would you like to add a new TFTP server [Y/N] prompt, do one of the following:

- Press **Y** and enter to identify another TFTP server that you want the MCU to use.
- Press **N** and **Enter** to return to the Network Configuration menu.

Step 6 At the Network Configuration menu, do one of the following:

- Enter the letter for the set of parameters that you want to configure.
- Enter **Q** to save your changes and allow the device to complete the boot process.

This information appears in the SCCP Protocol Configuration dialog box in the Administrator interface. In this dialog box, you can configure the MCU to support Cisco Unified CallManager as a SCCP conference bridge

Changing the Global User Name and Password

You can change the global user name and password that the MCU uses. You use this user name and password to access the configuration web page for the MCU, and is required for the following tasks:

- Starting a Telnet session to monitor the MCU
- Upgrading the MCU software
- Uploading Interactive Voice Response (IVR) messages to MCU configuration memory

The default global user name is *admin*. The default password is <null>.

Procedure

Step 1 Start a terminal emulator session as described in the "Setting the IP Address" section on page 2-8.

Step 2 At the prompt, enter **P**.

Step 3 At the Enter User name prompt, enter the name that you want to use as the global user name and press **Enter**.

Step 4 At the Password prompt, enter the password that you want to use and press **Enter**.

The network configuration Main menu appears.

Step 5 At the network configuration Main menu, do one of the following:

- Enter the letter for the set of parameters that you want to configure.
- Enter **Q** to save your changes and allow the device to complete the boot process.

Connecting the Cisco Unified Videoconferencing 3545 MCU to the LAN

This section describes how to connect the MCU to the Local Area Network (LAN).

Procedure

Step 1 Connect the supplied LAN cable from your network switch to the 10/100BaseT Ethernet port on the front panel of the MCU unit. The 10/100BaseT port accepts an RJ-45 connector.

Step 2 Turn on the power to the MCU unit.

Upgrading Cisco Unified Videoconferencing 3545 MCU Software

You can perform software upgrades by using the Cisco Upgrade Utility to upload files via a network or modem connection to the MCU. For more information, see Chapter 3, "Using the Cisco Software Upgrade Utility".

Initial 3545 EMP Configuration

When you are working with a Cisco Unified Videoconferencing 3545 EMP, you must also perform network configuration of this module.

Initial monitoring and administration of the EMP are performed from a remote PC using a terminal emulation application, such as HyperTerminal. To make the serial connection, connect a PC terminal to the front panel serial port of the EMP board as described in the "Connecting to a PC" section on page 2-8. The serial configuration utility runs as a target configuration service. You can use the serial configuration utility to:

- Configure default network port values.
- Modify the configuration software password.
- Modify the MCU IP address.
- Modify advanced configuration settings such as the web server port and LAN port, and to restore the factory configuration.

Warning **To enable the EMP to function properly, you must configure the EMP with a different IP address to your MCU.**

Accessing the Cisco Unified Videoconferencing 3545 EMP Main Menu

You access the EMP Main configuration menu in the same way as you access the MCU network configuration Main menu as described in the "Procedure" section on page 2-9.

The EMP Main configuration menu appears as follows:

```
Main menu
N: Configure default network port values
P: Change the configuration software password
```

```
S: Configure network security level
M: Change MCU ip address
A: Advanced configuration menu
Q: Quit

Select:
```

Setting the IP Address

This section describes how to use the serial port to configure the unit with an IP address and other address information.

The serial port on the EMP front panel is used to assign a new EMP an IP address. You can assign the IP address before or after you connect the hardware to the network.

Procedure

Step 1 At the prompt, enter **N** to configure default network port values and press **Enter**.

The default network properties screen appears as follows:

```
Enter IP Address for default Interface
  Without leading zeros <172.20.35.110:ffff0000>
Enter Default Router IP Address for default Interface
 Without leading zeros <current default Gateway IP address>:
```

Step 2 At the Enter IP address for default interface prompt, enter the IP address you want to assign to the EMP followed by the subnet mask, in the format <IP address:subnet mask> and press **Enter**.

Note You must enter the subnet mask in the hexadecimal format.

Step 3 At the Enter Default Router IP Address prompt, enter the IP address of the default Gateway that you want the EMP to use and press **Enter**.

Allow the unit to complete the reboot process. A new emulator session begins.

Step 4 At the Main menu, do one of the following:

- Enter the letter for the set of parameters that you want to configure.
- Enter **Q** to save your changes and allow the device to complete the boot process.

Caution Configuration of any of the parameters other than <N> to configure default network port values may alter the function of the device and should not be performed by an unauthorized person.

Changing the Configuration Software Password

You can use the serial port to change the configuration software password.

Procedure

Step 1 At the prompt, enter **P** to change the configuration software password and press **Enter**.

The user profile screen displays as follows:

```
Enter user name:
Enter new password:
```

Step 2 At the Enter user name prompt, enter the new user name and press **Enter**.

Step 3 At the Enter user password prompt, enter the new password and press any key to return to the EMP Main menu.

Changing the Security Level

You can use the serial port to change the security level. Security levels are as follows:

- 0 (low)—Allows SNMP, Telnet, HTTP, FTP, and ICMP to access the MCU.
- 1 (medium)—Allows access to the MCU only through SNMP, HTTP and ICMP.
- 2 (high)—Allows only HTTP to access the MCU.

Procedure

Step 1 At the prompt, enter **S** to configure the network security level and press **Enter**.

The security level screen displays as follows:

```
The current security level is [0 low].
Enter a new security level (0-low, 1-medium. 2-high):
```

Step 2 Enter the new security level required and press **Enter**.

The updated security level screen displays as follows:

```
The current security level is [0 low].
Enter a new security level (0-low, 1-medium. 2-high):
2
Board security level changing to [2 high]:
Set icmpRequestBlock to 2
The new security level is [2 high].
```

Step 3 The EMP Main menu displays.

Pointing the EMP to the Controlling MCU

You can use the serial port to point the EMP to the IP address of the controlling MCU.

Procedure

Step 1 At the prompt, enter **M** to change the MCU IP address and press **Enter**.

The MCU IP address screen displays as follows:

```
Enter MCU ip address
Without leading zeros <current IP address>:
```

Step 2 Enter the IP address of the MCU and press any key to return to the EMP Main menu.

Changing Advanced Configuration Settings

You can use the serial port to change the following advanced configuration settings:

- Web server port (for future use)
- Restore factory configuration (for future use)
- LAN port settings
- Disable DSP reset

Procedure

Step 1 At the prompt, enter **A** to access the **Advanced Configuration** menu.

The Advanced Configuration menu displays as follows:

```
Advanced configuration menu
Q: Quit
1: Configure web server port
2: Restore factory configuration
3: Change Lan port Settings
4: Disable DSP reset

Select:
```

Step 2 At the prompt, enter **1** to configure the web server port.

The current web port server setting displays.

Step 3 At the prompt, enter **2** to restore the factory configuration settings.

You are asked to confirm your choice as follows:

```
Select: 2
Are you sure you want to restore factory configuration? [y, n]:
```

Step 4 Enter **y** or **n**.

Step 5 At the prompt, enter **3** to change Ethernet speed and duplex parameters.

The network interface card settings screen appears as follows:

```
Choose : 1 - 10Mbps  Half Duplex
       : 2 - 100Mbps Half Duplex
       : 3 - 10Mbps  Full Duplex
       : 4 - 100Mbps Full Duplex
```

```
: 5 - Auto
other - Quit
:
```

Step 6 Enter either a number between 0 and 5 inclusive, representing the required option.

Step 7 Press any other key to quit without changing the network working mode.

Step 8 At the prompt, enter **4** to disable the DSP reset facility.

Note After options Q and 1-3, press any key to return to the EMP Main menu. After option 4, the EMP Main menu displays automatically.

Caution Only qualified technical personnel should modify the DSP reset function settings.

Saving Network Configuration Settings

Modified network configuration settings are automatically saved when you exit the EMP Main menu.

Procedure

Step 1 Ensure you have completed your configuration.

Step 2 At the prompt, enter **Q** to exit the video processing module Main menu.

The video processing module Main menu closes and your machine will automatically reboot.

Connecting the EMP to the LAN

This section describes how to connect the EMP to the Local Area Network (LAN).

Procedure

Step 1 Connect the supplied LAN cable from your network switch to the 10/100BaseT Ethernet port on the front panel of the EMP unit. The 10/100BaseT port accepts an RJ-45 connector.

Step 2 Turn on the power to the EMP unit.

Accessing the 3545 MCU Administrator Interface

The Cisco Unified Videoconferencing 3545 MCU Administrator is a web interface that allows you to configure general MCU settings, monitor MCU operation, create or edit services, manage media processor units and perform maintenance.

You access the MCU Administrator web interface in the MCU access window by signing in as an Administrator.

You can use your web browser from any remote PC station to monitor and to configure the MCU application. A web server is installed in the MCU to facilitate the use of the remote web-based monitoring and management.

Access to the MCU configuration interface is controlled by a user name and a password. Once you have entered the settings you want, you should upload them to the unit for them to take effect, or you can save them to a configuration file to be loaded at a later time.

Before You Begin

The following requirements are necessary to access the MCU Administrator web interface:

- A Java-compliant browser. Microsoft Internet Explorer version 5.5 or later is recommended.
- The MCU IP address or a web link to the MCU.
- The required user name and password.

Note For first-time installation, you must assign an IP address to the MCU using a serial port connection before you can access the web interface. For more information, see the "Setting the IP Address" section on page 2-8.

Procedure

Step 1 Launch your browser and enter the IP address or the name of the MCU followed by /admin.

For example, http://125.221.23.44/admin or board_name/admin.

The MCU access window appears.

Step 2 Enter the Administrator user name and password in the appropriate fields and click **Go**. The default global user name is *admin*. The default password is <null>.

The MCU Administrator interface appears.

Note If you try to sign in as an Administrator and another Administrator is currently signed in, the MCU signs you in as a Read only user. The words *Read Only* appear at the top of the window and a pop-up displays the IP address of the Administrator already signed in. Read only users cannot edit any of the MCU settings.

Using the 3545 MCU Setup Wizard

The MCU setup wizard runs automatically the first time you access the MCU Administrator interface. In the setup wizard, you can configure addressing for the MCU IP, H.323 gatekeeper, and Session Initiation Protocol (SIP) proxy. In the setup wizard, you can also set the regional date and time settings of the device on which you manage the MCU.

Procedure

Step 1 In the Administrator interface, click **MCU**

Step 2 On the toolbar, click **Setup Wizard**.

The MCU Setup Wizard dialog box appears, displaying the Board Settings section.

Step 3 To change the IP address information with which the MCU is currently configured, follow these steps:

- In the **IP address** field, enter the IP address you want to assign to the MCU.
- In the **Subnet mask** field, enter the subnet mask you want to assign to the MCU.
- In the **Router IP address** field, enter the IP address of the router that you want the MCU to use.
- Click **Next**.

The H.323 Settings section appears.

Step 4 To set the gatekeeper you want the MCU to use, follow these steps:

- In the **Gatekeeper IP** field, enter the IP address of the gatekeeper that you want the MCU to use.
- In the **Gatekeeper Port** field, enter the port number that the MCU can use to communicate with the gatekeeper.
- Click **Next**.

The SIP Settings section appears.

Step 5 To change SIP configuration, follow these steps:

- In the **Proxy IP** field, enter the IP address for the SIP proxy.
- In the **Proxy Port** field, enter the port for the SIP proxy.
- In the **Default Domain** field, enter the default domain for the SIP proxy.
- Select **Using Microsoft LCS** if the SIP proxy communicates with a Microsoft Live Communication Server device.

The Date and Time Settings section appears.

Step 6 To synchronize the MCU clock with the clock on the current computer, select **Update to local time**.

Step 7 Click **Finish**.

Registering the Online Help for the 3545 MCU

The online help files for the MCU Administrator and Conference Control interfaces are shipped on the Cisco Unified Videoconferencing Software CD-ROM. To use the online help, you must install the help files for the MCU in a shared directory on your network and register the directory location in the Administrator interface.

If you wish to install the online help on a shared network location and link it to the MCU Administrator, perform the following steps:

Procedure

Step 1 Copy the online help library from the Cisco Unified Videoconferencing Software CD-ROM to a shared folder on a PC on your network.

Step 2 Log in to the MCU Administrator interface.

Step 3 In the Online help URL field of the Board Web tab, enter the directory path to the help files you installed on your PC.

The path must have the form:

file://computerName/sharedDirectory

where computerName is the name of the computer on the network and sharedDirectory is the path to the Online Help folder on the CD-ROM. For example:

file://myComputer/Shared/Online Help

Step 4 Click **Upload** in the Cisco Unified Videoconferencing 3545 MCU Administrator toolbar, followed by **Refresh**.

Step 5 You may need to log out and log back in to the MCU Administrator for the change to take effect.

Netscape Navigator Users

Online help files located on the local network and accessed using Netscape Navigator 4.x must be located on a mapped network drive.

Using the Cisco Software Upgrade Utility

This section describes the following topics:

- Introduction, page 3-1
- Launching the Cisco Software Upgrade Utility, page 3-1
- Upgrading Software, page 3-2

Introduction

The Cisco Software Upgrade Utility is an interactive GUI interface that enables you to upgrade Cisco software installed on Cisco devices.

The Cisco Software Upgrade Utility enables you to select files to be uploaded via a network or modem connection to the Cisco device. You can select either to perform a typical upgrade which includes all the new files or a customized upgrade which enables you to select which files to upload.

The upgrade files are uploaded and then burned into the memory of the Cisco device.

Before You Begin

Cisco devices automatically save configuration settings before a software upgrade takes place. However, it is recommended that you save all configuration information using the Export button in the Cisco device web interface toolbar. You can retrieve all these settings after the software upgrade is complete by using the Import button in the Cisco device web interface toolbar.

Launching the Cisco Software Upgrade Utility

This section describes how to install and launch the Cisco Software Upgrade Utility.

Procedure

Step 1 Download the *UpgradeUtility.exe* file from the Cisco Unified Videoconferencing Software CD-ROM.

Step 2 Double click the *UpgradeUtility.exe* file to run the Software Upgrade Utility.

The upgrade files are extracted and the Upgrade Utility dialog box appears.

Upgrading Software

This section describes how to use the Software Upgrade Utility to upgrade Cisco software installed on Cisco devices.

Procedure

Step 1 In the General Information section of the Upgrade Utility dialog box, enter the IP address of the device you want to upgrade.

Step 2 In the Login Information section, enter the administrator user name and password for the target device, as configured in the device network configuration settings.

Step 3 (Optional) Modify the read and write community settings for the target device as follows:

- Click **Customize SNMP Settings**.

The Customize SNMP Settings dialog box displays.

- Enter the required read community and write community values.

Note We recommend that you modify the default settings for security purposes.

- Click **OK** to return to the Upgrade Utility dialog box.

Step 4 (Optional) Select the components of the target device you want to upgrade as follows:

- Click **Customize**.

The Customize dialog box appears.

- Check the device components you want to upgrade in the Select the components you want to upgrade list.

Note The components displayed vary according to the Cisco device upgraded.

- Click **OK** to return to the Upgrade Utility dialog box.

Step 5 Click **Upgrade** to upgrade all components of the Cisco device software (or only those components you manually selected via the Customize option).

The Cisco Software Upgrade Utility informs you whether or not the upgrade is successful.

Note When the upgrade is complete, the Cisco device automatically resets itself and starts operation with the new software version.

Cisco Unified Videoconferencing 3545 MCU Cable Connections and Pin-outs

This section describes the following topics:

- Unit RS-232 9-Pin Serial Port on the 3545 MCU, page 4-1
- 9-Pin Serial Port Terminal Cable on the 3545 MCU, page 4-2
- RJ-45 8-Pin IP Network Port on the 3545 MCU, page 4-2
- Circuit Switch Network Port on the 3545 MCU, page 4-3

Unit RS-232 9-Pin Serial Port on the 3545 MCU

Table 4-1 describes the Cisco Unified Videoconferencing 3545 chassis RS-232 9-pin D-type serial port pin-out configuration.

Table 4-1 RS-232 9-pin D-Type Serial Port Pin-out

Pin	Function	I/O
1	NC	
2	RXD	Input
3	TXD	Output
4	NC	
5	GND	
6	NC	
7	NC	
8	NC	
9	NC	

9-Pin Serial Port Terminal Cable on the 3545 MCU

Table 4-2 describes the pin-to-pin configuration of the RS-232 terminal cable provided with the Cisco Unified Videoconferencing 3545 chassis.

Table 4-2 RS-232 Terminal Cable Pin-to-Pin Configuration

To Chassis (DB-9 Male)	Function	To PC Terminal (DB-9 Female)
2	TXD	3
3	RXD	2
5	GND	5

RJ-45 8-Pin IP Network Port on the 3545 MCU

Table 4-3 describes the pin-out configuration of the RJ-45 IP network port.

Table 4-3 Pin-out Configuration of the RJ-45 IP Network Port

Pin	Function	I/O
1	TXD+	Output
2	TXD+	Output
3	RXD+	Input
4	NC	
5	NC	
6	RXD-	Input
7	NC	
8	NC	

Circuit Switch Network Port on the 3545 MCU

Table 4-4 describes the circuit switch network port RJ-45 connector pin-out configuration.

Table 4-4 ISDN Port RJ-45 Connector Pin-out

Pin	Function
1	RXD +
2	RXD -
3	NC
4	TXD +
5	TXD -
6	NC
7	NC
8	NC

CHAPTER 5

Cisco Unified Videoconferencing 3545 MCU Technical Specifications

This section provides technical specifications for the .

Technical Specifications Table for the 3545 MCU

Table 5-1 Cisco Unified Videoconferencing 3545 Chassis Technical Specifications

Chassis Dimensions	• Height: 2U (3.5 inches or 88.9 mm) • Width: 17.25 inches (438.15 mm) • Depth: 10 inches (254 mm) • Weight: 8 kg (17.64 lbs) empty, 11 kg (24.25 lbs) full—may vary according to configuration
Element Board Dimensions	• Width: 9.19 inches (233.35 mm) • Depth: 6.3 inches (160 mm)
RTM Board Dimensions	• Width: 9.19 inches (233.35 mm) • Depth: 3.15 inches (80 mm)
System Monitoring LED Indicators	• POWER • ALARM • FAN • TEMP

Table 5-1 Cisco Unified Videoconferencing 3545 Chassis Technical Specifications (continued)

Board LED Indicators	
Front panel	• ETHERNET: – Link – Connection Speed • GK Reg • CPU High (MCU only) • CD (gateways only) • ALARM • ACT • MC (EMP only)
Rear panel (Cisco Unified Videoconferencing 35 45 PRI Gateway)	• PRI 1 or 2: – ACT – D-Ch – ALRM
Rear panel (Cisco Unified Videoconferencing 35 45 Serial Gateway)	• PORT 1 to 4: – ACT – ALARM
Push Buttons	• RST (front panel)
Communication Interfaces	
Front panel	• Ethernet 10/100 Mbps auto-negotiate speed select • Asynchronous serial port RS-232 connected via 9-pin D-type connector
Rear panel (Cisco Unified Videoconferencing 35 45 PRI Gateway)	• 2 x ISDN E1/T1 PRI port: – T1 mode Channels: 23B + 1D Clock rate: 1.544 Mbps Framing: F4, F12, ESF no CRC, ESF, F72 Encoding: NRZ, AMI-B7, B8ZS Line impedance: 100Ω – E1 mode Channels: 30B + 1D Clock rate: 2.048 Mbps Framing: Double framing, CRC4, Extended CRC4 Encoding: NRZ, CMI, AMI, HDB3 Line impedance: 120Ω

Table 5-1 Cisco Unified Videoconferencing 3545 Chassis Technical Specifications (continued)

Rear panel (Cisco Unified Videoconferencing 35 45 Serial Gateway)	• 4 x serial ports
Chipset	• PowerPC MPC7410 32-bit RISC microprocessor running at 500MHz. • MPC8260 communication processor running at 300/200MHz.
Operating System	• RTOS, VxWorks 5.4
Memory	• 32 MB on-board flash memory for field upgrades • 2 MB L-2 Cache at 250MHz • 128 MB SDRAM
Failsafe	• Watchdog timer built in
Power supply	• Dual power supply units • Full redundancy • Power on/alarm LED on each unit. • Input 100-240VAC, 50/60Hz, autoswitched • Output + 3.3VDC, + 5VDC, ± 12VDC • Maximum power load 300W
Ventilation Fans	• 2 fan units • Brushless 12V DC motor • Locked rotor detection • Polarity protection • Auto-restart capability

CHAPTER 6

Cisco Unified Videoconferencing 3545 MCU Safety

This section describes the following topics:

- Electrical Safety for the 3545 MCU, page 6-1
- ESD Procedures for the 3545 MCU, page 6-2

Electrical Safety for the 3545 MCU

To avoid an electric shock or damage to the Cisco Unified Videoconferencing 3545 System, servicing should be performed by qualified service personnel only.

To reduce the risk of damaging power surges, Cisco recommends installing an AC surge arrestor in the AC outlet from which the Cisco Unified Videoconferencing 3545 System is powered.

Warning **Changes or modifications to the device that are not approved by the party responsible for compliance could void the user's authority to operate the equipment.**

Warning **There is a danger of explosion if the cPCI board battery is incorrectly replaced. Replace with the same type, or an equivalent type recommended by the manufacturer. Dispose of used batteries only according to manufacturer instructions.**

Grounding

The power cable of the Cisco Unified Videoconferencing 3545 System should only be connected to a power outlet that has a protective earth contact. Do not use an extension cord that does not have a protective conductor (ground). The Cisco Unified Videoconferencing 3545 chassis can become dangerous if you interrupt any of the protective conductors (grounding) or disconnect any of the protective earth terminals.

High Voltage

Disconnect the Cisco Unified Videoconferencing 3545 chassis from the power line before removing the cover. Avoid any adjustment, maintenance, or repair of an opened chassis under voltage. These actions should only be carried out by a skilled person who is aware of the dangers involved. Capacitors inside the chassis may still be charged, even if the unit has been disconnected from the power source.

Power Supply

Caution Risk of electric shock and energy hazard. Disconnecting one power supply disconnects only one power supply module. To isolate the unit completely, disconnect all power supplies.

ESD Procedures for the 3545 MCU

To prevent damage to Cisco element boards by random electrostatic discharge (ESD), the use of wrist straps is highly recommended.

Cisco Unified Videoconferencing 3545 MCU Compliance and Certifications

This section describes the following topics:

- Safety Compliance for the 3545 MCU, page 7-1
- EMC for the 3545 MCU, page 7-1
- Telecom for the 3545 MCU, page 7-2
- Environmental Compliance for the 3545 MCU, page 7-4

Safety Compliance for the 3545 MCU

This section lists the safety standards supported by the Cisco Unified Videoconferencing 3545 System.

- UL 60950
- CSA C22.2 No. 60950
- EN 60950
- TS 001
- AS/NZS 60950
- IEC 60950

EMC for the 3545 MCU

This section lists the EMC compliance for the Cisco Unified Videoconferencing 3545 System.

- FCC Part 15 (CFR 47) Class A
- ICES-003 Class A
- EN 55022 Class A
- CISPR22 Class A
- AS/NZS CISPR22 Class A
- VCCI Class A
- CISPR24

- EN 55024
- EN 50082-1
- EN 61000-3-2
- EN 61000-3-3
- EN 61000-6-1

Warning **This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.**

FCC Part 15 Notice

This section provides RF interference information for the user.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at one's own expense.

Warning **Changes or modifications to the device that are not approved by the party responsible for compliance could void the user's authority to operate the equipment.**

Telecom for the 3545 MCU

This section lists standards compliance for products that connect to ISDN lines.

- Administrative Council for Terminal Attachments (ACTA) Customer Information.
- Canadian Department of Communications Notice.
- CE CTR3
- CE CTR4

ACTA Customer Information

Step 1 This equipment complies with Part 68 of the FCC rules, and the requirement adopted by the ACTA. On the cover of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX, made out to CLPISR-45023-DW-N. If requested, this information must be provided to the telephone company.

Step 2 Applicable registration jack USOCs (Universal Service Order Codes) for the equipment is RJ48C.

Step 3 A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See Installation Instructions for details.

Step 4 If the Cisco Unified Videoconferencing 3545 System equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

Step 5 The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

Step 6 If trouble is experienced with the Cisco Unified Videoconferencing 3545 System equipment, for repairs or warranty information please contact your Cisco representative for information on service or repairs. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

Step 7 Only Cisco Systems, Inc. qualified service personnel may repair the equipment.

Canadian Department of Communications Notice

The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above condition may not prevent degradation of service in some situations.

Repairs to some certified equipment should be made by an authorized maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the ground connections of the power utility, telephone lines and internal metallic water pipe platform, are connected together. This precaution may be particularly important in rural areas.

Warning **Users should not attempt to make such connections themselves, but should contact the appropriate E1/T1/PRI electric inspection authority, or appropriate E1/T1/PRI electrician.**

Step 8 Environment

Cisco complies with the following EU Directives:

- Restrictions on the Use of Hazardous Substances (RoHS) Directive 2002/95/EC
- Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC

Environmental Compliance for the 3545 MCU

Cisco complies with the following EU Directives:

- Restrictions on the Use of Hazardous Substances (RoHS) Directive 2002/95/EC
- Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC

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